



# OBSERVER

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◆ **Human Capital Initiative is funded at the National Science Foundation in Fiscal Year 95 budget** ..... 3

◆ **NIMH Task Force draft report on behavioral science** ..... 4,5

◆ **Senate Pushes for NIH's establishment of Office of Behavioral and Social Science Research** ..... 6

◆ **Calls for Submissions ... insert**  
 • APS 1995 Convention  
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## INSIDE

Research Synthesis	8
Public Policy Developments	12
Call for Editor of CD	13
New APS Fellows	21

## Departments

Presidential Column	2
Department Profile	20
International Psychology	22
Teaching Tips	24
People	26
Members in the News	28
Obituaries	30
The Student Notebook	36
Organizational Profile -	
Undergraduate Research	40
Announcements	41
Employment Bulletin	45

## Congress Comes Through For Behavioral Science

*Good news for psychological research funding, visibility, and NIH office*

WASHINGTON, DC—Unless you've been on the proverbial desert island, you know that Congress has been occupied with health care reform, a crime bill, and numerous other mega-issues, the debate of which prevented them from taking much of their customary August recess.

That alone may have contributed to the "more-heat-than-light" nature of the speeches you saw on C-SPAN, since being forced to stay in Washington, a.k.a. the humidity capital of the universe, could only add to the existing congressional tendency to crankiness. Not to mention the baseball strike.

Well, one of the reasons you read the *Observer* is to get news from Washington that even C-SPAN doesn't give you, right? And once again, the news from Capitol Hill is great: This year we are seeing unprecedented statements of support for behavioral and social science by congress-

sional appropriators, and despite the generally tight federal budget for science, there is funding for new initiatives that will directly benefit psychology researchers. Of course, unlike other papers, we're not just reporting the news; we're making it happen. (There's a slogan in there somewhere....)

In all seriousness, in this *Observer* issue are three stories on important actions taken by the US Senate and House regarding behavioral science and the upcoming budget of the National Science Foundation (NSF) (page 3), the National Institute of Mental Health (NIMH) specifically (pages 4 and 5), and the National Institutes of Health (NIH) generally (page 6). Take a moment to bask in the glory with us, and remember that this was done by the same people who brought you the health care debate! Go figure...

## Academy Releases Report on Boosting Human Performance

*Latest of three reports of the National Academy of Sciences examines Evidence for claims of extraordinary training aides and techniques*

WASHINGTON, DC—"Americans are always looking for an edge in performance" said Eric Eich, associate professor of psychology at the University of British Columbia.

"If a new technique seems promising, we take a stab at it. It's our pragmatic streak, our can-do attitude; we're always looking for an edge, especially for high-level performance, whether it's cognitive, motor or athletic.

"Meanwhile, there are a lot of techniques that we know do work. They do enhance human performance. They're not always easy, or quick-and-dirty, or sexy. And, in fact,

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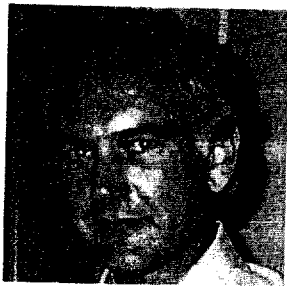
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## REPORT FROM PAGE 1



Eric Eich

often they're hard work. That's the catch," said Eich, a member of the National Research Council's (NRC) Committee on Techniques for the Enhancement of Human Performance.

Eich is one of eight APS members and fellows among the 11-member committee whose report, *Learning, Remembering, Believing: Enhancing Human Performance*, was published by the National Academy Press in August.\*

Released officially on August 2, the 395-page book reports on the third phase of an NRC effort started almost a decade ago when the US Army needed scientifically based critical evaluations of "human technologies" that were being aggressively promoted by commercial concerns as enhancers of learning and performance. Because of its large economic and personnel investment in training, the military wanted to satisfy more than just its curiosity about these technologies. So, officials of the Army Research Institute (ARI) commissioned the study to assess the state of knowledge. [See the November 1991 *Observer* for an extensive summary of the NRC's second report (*In the Mind's Eye: Enhancing Human Performance*) of what ultimately will be a four-report series.]

## Questions

Was there anything real and worthwhile, for example, in extrasensory perception or "hemispheric synchronization" or subliminal stimulation? What was the evidence on sleep learning, mental practice of motor skills, or group cohesion techniques? The Army had to decide which techniques to adopt, which to keep, which to discard—and it needed information on which to base such decisions.

The just-completed third phase of the study has been chaired

by APS Charter Fellow Robert Bjork who also took part in each of the previous phases. Initially, the Army wanted information about new human technologies to avoid large expenditures and efforts in areas that wouldn't pay off, Bjork said.

Although the overall program has been funded all along by ARI, the concerns it addresses are widely applicable to a broad range of settings and populations in school and both public and private organizations, ranging from nuclear power environments to air traffic control towers.



The NRC Committee on a site visit at the Army's National Training Center at Fort Irwin in the Mohave Desert.

## Answers for Everyone

"I think everybody is concerned about these issues, from parents thinking about the education their kids are getting, to companies concerned whether they can learn and change in response to new challenges and constraints," Bjork said.

"On one hand we found that people are often too receptive to trying novel and attractive techniques for which there is no evidence of effectiveness but perhaps which are being promoted by a very convincing entrepreneur. People also often do not incorporate into their training programs the most tried and true principles derived from research," Bjork said.

The new study differs in many ways from its two earlier reports, particularly in picking up new directions in research and exploring promising aspects of emerging research fields. The 1987 and 1991 studies evaluated and sometimes debunked about 15 highly promoted "self-improvement" techniques and other programs and approaches that promised high performance. The second report, *In the Mind's Eye*, also focused on scientifically tried and supported ways by which people can acquire and maintain job-related skills needed to fulfill the missions of the Army and other organizations.

The current report covers topics in four broad areas: Learning and remembering, Learning and Performing in teams, mental and emotional states, and new techniques (e.g., thought suppression).

### Members of the Committee on Techniques for the Enhancement of Human Performance

Robert A. Bjork (*chair*)  
Univ. of California-Los Angeles

John F. Kihlstrom  
Yale Univ.

Donald F. Dansereau  
Texas Christian Univ.

Roberta Klatzky  
Carnegie Mellon Univ.

Eric Eich  
Univ. of British Columbia

Lynne M. Reder  
Carnegie Mellon Univ.

Deborah L. Feltz  
Michigan State Univ.

Daniel M. Wegner  
Univ. of Virginia-Charlottesville

Larry L. Jacoby  
McMaster Univ.

Robert B. Zajonc  
Univ. of Michigan-Ann Arbor

David W. Johnson  
Univ. of Minnesota

Daniel Druckman (*Study Director*)  
National Research Council

FROM PREVIOUS PAGE

### Techniques Examined

But *Learning, Remembering, Believing* evaluates several additional techniques proclaimed as performance enhancers, including **situated learning** and **REST (Restricted Environmental Stimulation)**, both of which received mixed or low ratings from the Committee, though they have strong backing in some academic circles. The new study also takes a second look at **meditation**, specifically at Transcendental Meditation, and at **sleep learning** and some of the other techniques that were treated in the earlier reports.

For the first time, the new report analyzes the body of research on techniques of **thought suppression, socially induced emotion in relation to performance, and false illusions of comprehension and competency**. It also evaluates the impact of situation-specific self-confidence on performance and looks at strategies for developing self-confidence.

A major section of the new report focuses on **development of teams, and cooperative learning**.

A closing section of the report suggests some answers to puzzling questions about why many organizations neglect or fail to use effective methods for training their personnel. Some company officials at more than two dozen site visits made by NRC subcommittee members said they did not take more serious approaches to training because "training is a slice out of profits." A member of the Los Angeles Police Department downplayed long-term investment in training by saying you should only do enough so that "the bridge falls down when the next mayor is in office."

### Innate Fallacy

A major barrier to the design of effective training programs, the Committee said, is the "innate ability fallacy." This is the false belief that performance is primarily a function of innate abilities and that people are born to be a certain way with regard to performance. Instead, the Committee sees humanity as dynamic, learning persons who respond to effective programs of training and practice.

The Committee also criticized tendencies to construct the conditions of training to minimize errors so that both trainees and instructors will look their best. Instead, the process of making and correcting errors should not be shunned; it is an essential component of optimal training. Similarly, the Committee took a dim view of the exclusive use of tests as assessment devices, which largely negates their important role as learning devices. Furthermore, the Committee cautioned that performance evaluations given immediately as training ends will miss the main goal of training, which is to transfer learned skills to the settings in which trainees will work.

### Behavioral Science Application

The NRC's broad, long-term undertaking—which now is entering its fourth phase [see box on page 17] this year with Jerome E. Singer as chair—is not like any other program, as it brings behavioral research literature to bear on specific, practical questions.

"What makes this committee unique," said Daniel Druckman, NRC Study Director, "is that we get a dozen or so people to start thinking together for a couple of years and to draw on the literature that they know—or discover in the process—and make that literature speak to the question of the effectiveness of the techniques for enhancing human performance. In most cases the techniques we've looked at have not been subject to that kind of scrutiny before."

Besides discussing the NRC Committee's work with Druckman, who also is professor of conflict resolution at George Mason University's Institute of Conflict Analysis and Resolution, the *Observer* interviewed several of the Committee members on the major techniques covered in this latest report. Their comments follow in the topical sections below.

### Situated Learning

Proponents of situated learning say essentially that the only way to learn is by performing the process in its specific situation, and that advanced conceptual understanding does not help. Roberta Klatzky, professor and head of psychology at Carnegie-Mellon University, points out that the Committee takes the balanced view that concrete experience and conceptual learning are often both helpful and necessary.

"What we mean by conceptual learning will vary from task to task," Klatzky said, "but let's take the example of training someone to fly a plane. You can put that person in the cockpit and say, 'Look, pull this button and away we go!' Or, you can also teach that person something about the physical principles and concepts that underlie flying, about what factors must be controlled and what the plane does in response. That way they can more effectively make a 'mapping' to the buttons they will eventually learn to control, and they'll understand *why*," she said.

"But there is no easy formula for the right mix [of concrete and conceptual]," Klatzky said. "A task analysis is terribly important in determining any training program."

Committee member Lynne Reder says that the situated learning advocates believe that a person's knowledge will not generalize from one situation to another. Their claims challenge not only the fundamentals of cognitive psychology but also the simple belief that schools should try to teach basic skills, Reder says.

"Basic skills *do* generalize from one context to the next. For example, most kids learn to read and write in school, and these skills clearly generalize beyond the classroom. Math, too," Reder said. "Situated learning proponents also believe that abstract instruction is of no value. But, there is ample evidence that transfer is much better when instruction includes both concrete and abstract instruction," she said.

Situated learning proponents argue that "to understand performance, it is necessary to understand the social situation in which it occurs, including the way in which social interaction



Lynne Reder

SEE REPORT ON PAGE 16

## REPORT FROM PAGE 15

enters into performance," Reder explained. "I wouldn't disagree, but they therefore conclude that all training must include the social setting. We believe that it's often better to start with part-task training—training the specific skills separate from the social skills before going on to whole-task training. Whether you train with part-task first depends on how separable the pieces are," she said.



Donald Dansereau

"We say that training in the anticipated context is often better, all else being equal. But one cannot always anticipate future contexts of application. Therefore, optimal training involves practice using varied contexts and also includes abstract general instructions," Reder said.

"It's sometimes important to start with simulation training,...for lots of things that are too dangerous or costly or time-consuming, or where it's too hard to find a situation.... But it has also been argued that too much fidelity is detrimental at the outset, that it's too complicated and you need to start with a

simpler version, slowly adding in a richer, more faithful simulation," Reder said.

**Illusions of Competence**

Bjork noted that a number of recent research findings suggest that false illusions of comprehension and competence are commonplace in standard programs of training.

"Trainees can confuse familiarity with understanding. They can confuse the ability to follow a procedure when executed by someone else with their own competence to perform that procedure. And they can confuse the ability to recall relevant knowledge under predictable conditions with ability to access that knowledge in other (unpredictable) conditions," Bjork explained. He said the Committee concluded it is as important to educate trainees about their own *subjective* experience as about their objective performance, so that they can gain a valid reading of their own skills and knowledge.



Daniel Wegner

**Summary of Findings on****TOPICS AND TECHNIQUES STUDIED  
BY THE NRC COMMITTEE****Current (Third) Phase - 1994**

- ◆ **Situated Learning.** Committee criticized this approach as too extreme but said contextual learning is very important and needs to be combined with learning principles and concepts, not focusing solely on one or the other.
- ◆ **Illusions of Competence, Comprehension, and Remembering.** Committee explored false memories and illusions of competence and the unreliability of subjective experience, which relies on an unconscious attribution or inference process.
- ◆ **Cooperative Learning.** Committee viewed this approach favorably. Working on problems in dyads or small groups has a positive impact on individual performance, though Committee cautioned that roles and activities must be carefully defined and scripted.
- ◆ **Team Building.** Teams have good effects on morale by building cohesion and identity, Committee found, but they don't seem to improve performance, especially in the long term. Effects are largely on emotion and motivation but do not translate into higher performance.
- ◆ **Interactive Games.** Again, they instill positive attitudes toward the learning experience, but evidence to date does not show better effects on learning than from other techniques.
- ◆ **Team Training.** There is some evidence of effectiveness for efforts to promote positive interdependence, individual

accountability for performance, the playing up of contributions by the members of the team, and team processing of performance in response to feedback.

- ◆ **Building Self-Confidence.** Various kinds of programs do affect perceptions of self-confidence in learners, and self-confidence does play an important role in performance, though it is not a simple matter. Perceived self-confidence involves both cognitive and motivational factors and is rooted in beliefs about what affects performance. Findings provide a basis for designing programs to improve perceptions of efficacy in order to improve performance.
- ◆ **Altering States of Consciousness.** Committee examined sleep learning a second time, lowering its earlier evaluation. Transcendental Meditation was found helpful in stress reduction, but no more so than some other meditation and stress reduction techniques. Hypnosis, examined by Committee for the first time, was found potentially helpful for pain reduction but not directly effective in boosting performance. Restricted environmental stimulation (REST) does not appear to live up to its ambitious claims; but being in solitude for a period without distractions may have salutary effects for the short period, Committee finds.
- ◆ **Socially Induced Affect.** By mimicking the facial or vocal expressions of another person, one may feel the emotions those expressions suggest. The Committee found evidence for such transmission of affect, but there was less evidence to date of its impact on performance.
- ◆ **Thought Suppression.** Committee found evidence that intentional efforts to forget intrusive thoughts are largely ineffective, and suppressing thoughts tends to increase the strength of emotion attached to them.

### Thought Suppression

Committee member Daniel Wegner, said the somewhat limited research on thought suppression seems to show that as a technique for mental control it is ineffective. In fact, it even appears to produce effects contrary to those sought (e.g., eliminating an obsessive thought) by "sensitizing ourselves to unwanted thoughts by the very act of suppression." Some current research suggests that "unwanted thoughts are often avoided most successfully by approaching them," Wegner said. "Giving people a chance to think or talk about their unwanted thought, time to spend approaching their worries, seems to be an effective technique. At this point we are not in a position to say these are invariably the best alternatives, but caution about using thought suppression is something that people might want to be careful about," Wegner said.

Asked how conscious thought suppression relates to Freudian psychoanalytic theory, he said there may be some indications that deliberate suppression involves risks similar to those Freud found in unconscious repression (i.e., increased emotional power of the avoided thoughts).

The other suppression technique examined was "directed forgetting," where one tries to unlearn obsolete patterns (e.g., such as how one used the controls of one's former car) that interfere with new contexts (e.g., a new car's controls). Needed is research on how to facilitate the forgetting of unneeded information without the negative consequences of thought suppression.

### Cooperative Learning

Cooperative learning involves small groups of peers, usually of equal status. The concern is for what the individual learns in a cooperative situation compared to what he or she learns alone. Committee member Donald Dansereau said cooperative learning seems to work with a wide variety of tasks and topics—mathematics, and social science, for example. There are enough solid studies that have used random assignment to groups that suggest that it does seem effective, Dansereau said, and that is essentially the Committee's conclusion.

The effect sizes are at the moderate level, with increases (of about a third to a half of a standard deviation) in achievement gained from cooperative over individual study. Some peripheral gains derive from cooperative learning, however, Dansereau said. For example, if the activity is well scripted—almost like a play script with roles and defined activities while cooperating—there seems to be some transfer to new activities, Dansereau said.

One of the most important findings, Dansereau believes, is that individuals "in cooperative contexts learn something that can be applied to private studying contexts, because learning and processing new information is a rather private activity. It is not like learning a new skill in racquetball, for example, by watching somebody play, and then trying to emulate. Rather, in thinking and learning, there usually is nothing obvious to emulate, but the cooperative situation makes the learning process more public, and participants begin to assimilate how others have tackled problems."

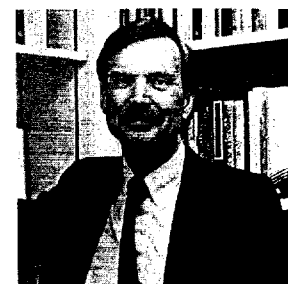
### Learning and Performing in Teams

The Committee found many benefits in team *training* but

team *building* efforts do not seem to enhance performance, Druckman noted. The four general approaches to team building—goal setting, interpersonal relations, role clarification, and problem solving—may boost morale and enhance group cohesion. But the increased morale and cohesion of teams within a larger organization may have detrimental effects on the organization itself, since relations with members of other groups may weaken, and intra-organizational conflicts between groups may increase.

### Altering States of Consciousness

**Hypnosis.** "By and large, direct hypnotic suggestions for enhanced performance have no effect on muscular strength and endurance, sensory thresholds, learning and memory retrieval," said Committee member John Kihlstrom. "Hypnotized people may *believe* they are doing better, and this belief may have positive motivational properties, but actual performance enhancements appear to be an illusion," he said. "However, hypnosis is an effective technique for the control of pain. And to the extent that a person's pain diminishes his or her motivation to perform optimally, hypnosis may have an indirect impact on performance."



John Kihlstrom

**Restricted Environments.** REST, or restricted environmental stimulation—reminiscent of sensory deprivation research of the 1950s—can be conducted in two ways. One is called chamber rest. In a dark, soundproof room the subject lays down typically for one day, with no auditory stimulation. The other approach uses a tank or a flotation raft on which one floats on a

SEE REPORT ON PAGE 18

### Committee Enters Fourth Phase Organizational Performance

The fourth phase of the NRC enhanced performance study, *Enhancing Organizational Performance*, got under way in June with a 14-member committee chaired by Jerome E. Singer of the Uniformed Services University of the Health Sciences. Daniel Druckman remains as Study Director. Its members include APS Fellow Robert Kahn of the University of Michigan's Institute for Social Research, and APS Charter Member W. Warner Burke of Columbia University, as well as sociologists, organizational behavior specialists from business schools, and political scientists.

The Committee's concerns include the impact of organizational restructuring and redesign on performance, organizational cultures and the implications of their folkways and accepted wisdom for performance, inter-organizational relations, changing conceptions of leadership, and peacekeeping and conflict management. The report is estimated to be released about 1997.

## REPORT FROM PAGE 17

supersaturated liquid in total darkness for one hour, typically. In either case, the experience generally elicits pleasant sensations.

Whether the technique can be used for therapeutic purposes began to be an issue in the 1980s. There are claims, not dealt with by the Committee, that REST treatment is useful for stress management and perhaps for certain addictive behaviors. The NRC Committee did attempt to evaluate the effects of REST on cognitive processes like learning, memory, decision-making, and problem solving. A newer literature studied by the Committee is concerned with athletic performance and skills. There is some evidence of the performance-enhancing effects of REST and there are a few formal studies, but not enough for firm conclusions, about the effects, if any, and their underlying mechanisms,

the Committee stated.

Eich said, that "among other things, there is no data now, even assuming the effects are real, about how long the effects last. If I float today, is it going to help my tennis game next week? More importantly, *why* should REST be helpful? There are no compelling theories," Eich said.

**Meditation.** In examining Transcendental Meditation (TM), Kihlstrom said the Committee focused on three meta-analyses of physiological effects, anxiety, and self-actualization. "We concluded that although those meta-analyses do give evidence for positive effects, it turns out to be very difficult to tease apart the factors involved. The whole TM package is so different from the control conditions to which it has been compared that it is not clear TM itself really has the specific effects that are claimed for it."

## Summary of Findings on

TOPICS AND TECHNIQUES STUDIED  
BY THE NRC COMMITTEE

## First Phase - 1987

- ◆ **SALTT.** Suggestive Accelerated Learning and Teaching Techniques include some music and relaxation techniques. The NRC Committee found that SALTT contains some ingredients that could help students learn better, but it's difficult to know which elements are most important.
- ◆ **Neurolinguistic Programming.** Purports to teach one to influence others more effectively by mimicking their eye-movements and noting the way they use words, modeling after expert therapists. The Committee liked the way it was developed but found that the evidence did not support claimed effectiveness.
- ◆ **Hemisphere Synchronization.** Tones are emitted in ears to synchronize the two hemispheres of the brain and thus make one think creatively. Committee found no evidence for bifurcation of the hemispheres that needed any such correction.
- ◆ **Extrasensory Perception.** Committee disputed claims made for its existence.
- ◆ **Sleep Learning.** Committee found it might be useful to reinforce previously learned language material and to prime future learning was found possibly effective. It suggested another look, but the third Committee found less evidence of effectiveness.
- ◆ **Stress Reduction.** Committee said good things about much of it but gave a mixed message on biofeedback, which it found good for fine motor coordination in violin playing, for example, but not particularly effective in reducing stress over the long term.
- ◆ **Mental Practice of Motor Skills.** The Committee rated this technique highly. It does incrementally increase performance, especially when combined with physical practice.

- ◆ **Group Cohesion.** Committee noted dysfunctions of cohesive units in terms of reducing initiative and creativity, and loosening bonds with other units in the organization. But it increases morale and motivation.

## Second Phase - 1991

(See November 1991 *Observer*)

- ◆ **Modeling Experts.** Watching experts perform and imitating them is not particularly good for novices but can be effective at some point later in development, Committee found.
- ◆ **Myers-Briggs Type Indicator.** Committee took strong position against typing people as if they fit into a box and never change, rather than treating them as dynamic, learning people. At best, Myers-Briggs gives a picture of an individual at a given point in time. It should not be used to assemble teams or pick people for jobs.
- ◆ **Subliminal Learning Tapes.** Committee found no useful function for learning or performance enhancement.
- ◆ **Kundalini Yoga.** Committee noted that it can reduce stress, as measured by blood pressure and other physiological indicators, but it is no better than other relaxation techniques for this. Committee found no evidence of anything intrinsic that produces higher states of being and corresponding salutary effects over the long term, as claimed.
- ◆ **Non-verbal Cues to Lying and Deception.** Committee found literature quite promising about ways of looking at non-verbal cues to detect deception.
- ◆ **Mental Practice in Sports.** Committee examined mental practice again and was again quite positive.
- ◆ **Team Performance and Decision-Making.** Committee found a number of techniques (e.g., Delphi, nominal group) have been used, though few have been evaluated systematically. Research on real groups has helped understand individual groups, but is not generalizable. Because of logistical difficulties, the military is best suited to study the requisite large number of comparable groups and subjects.



Bjork said the question asked was: Were there features unique to TM that made it better than other programs of progressive relaxation or other meditative techniques? The Committee did not address the broader question of whether someone's life might be straightened out or whether they would find a greater sense of peace, he said.

**Sleep Learning.** With respect to sleep learning, Kihlstrom pointed out that the Committee in an earlier phase had discovered that while there was no evidence of its effectiveness for explicit memory, there was some reason to think that implicit memory might be possible from material presented during sleep.

"However, when we looked at studies addressing this issue and concluded that there is no implicit memory for sleep learning just as there is no explicit memory for sleep learning. The bottom line is that sleep learning is neither an effective nor an efficient way of enhancing learning," Kihlstrom said.

### Self-Confidence

Perceptions of self-confidence affect performance, and trainers can help boost students' confidence in themselves and improve their performance, the NRC Committee found. Self-confidence is a fairly strong predictor of how students and trainees approach a task, and it remains a strong element, even after they have learned the task, according to Committee Member Deborah Feltz. Self-confidence in this sense is very specific to the situation or task, she said. For example, a baseball player may have greater confidence in his fielding than his batting. One's self-confidence can be accurate, inflated or deflated by various degrees, by comparison with task performance.



Deborah Feltz

Strategies to cultivate self-confidence are specific to the task or domain, Feltz said. "You use different strategies to cultivate self-confidence with phobics trying to overcome a phobia than you use with athletes in muscular endurance tasks, for example," she said.

Summing up the findings regarding what works to produce enhanced performance, Feltz replied, "Hard work—not just trying to become competent by some easy method (e.g., by taking a pill or sleeping on a book rather than reading through it). You really just can't beat determination and *practice, practice, practice*. And not being afraid to make mistakes. In terms of self-confidence, training must involve helping people not become discouraged by mistakes." **D.K.**

\* *Learning, Remembering, Believing: Enhancing Human Performance* is available for \$39.95 plus shipping (\$4 for the first copy and \$.50 for each additional copy) from the National Academy Press, 2101 Constitution Ave., NW, Washington, DC 20418, Tel.: 202-334-3313 or order by phone toll free at 1-800-624-624 from outside the Washington, DC area.]

## What Works, What Doesn't

### "TRIED AND TRUE" AND NEW APPROACHES: MAJOR FINDINGS

Debunking new "human technologies" that don't deliver on their inflated promises is only part of the mission of the **NRC Committee on Techniques for Enhancement of Human Performance**.

The NRC study's main purpose is a highly positive one: to promote the use of what Committee Chair Bjork sometimes calls "tried and true" approaches and techniques, for which there is strong scientific evidence of effectiveness. Among them:

- ◆ Concrete experience and teaching of abstract principles are *both* important in acquiring skills. Learning need not be situated in the performance context to be effective.
- ◆ Regular challenges should reveal to learners the actual extent of their understanding of the task or material they are learning. Gaps between *feelings* of knowing and *actual* comprehension can be wide and perilous.
- ◆ The importance of aptitude and innate ability tends to be inappropriately overestimated, and the importance of training, practice, and experience tends to be underestimated by many organizations. Training plays a large role in performance.
- ◆ Cooperative learning fosters individual learning and social interactions, both of which lead to enhanced performance, at least from evidence with children. More research with complex adult learning tasks is needed.
- ◆ Team building that boosts morale and enhances team cohesion may increase inter-team conflict and negatively affect overall organizational performance. Such negatives can be reduced by timing team-building interventions to transition periods in teams' life cycles.
- ◆ Training in teams offers many benefits. Effectiveness can be improved within each of the key four phases: Inputs (resources and tasks), process (what to focus on), mediators (how to structure the training) and outcomes (what to assess at the end).
- ◆ Task-specific self-confidence plays an important role in performance, and perceived self-confidence can be manipulated to enhance performance.
- ◆ Socially induced affect—the way one person's expressed feeling can influence another's—has interesting implications for performance but needs further research.
- ◆ Thought suppression—a special research effort should focus on how to forget old, unneeded information that interferes with performing new tasks while avoiding the adverse effects of thought suppression.